ORIGINAL

INEEL PUBLIC MEETING ON PROPOSED CLEANUP PLAN
FOR WASTE AREA GROUP 5
(POWER BURST FACILITY/AUXILIARY REACTOR AREA)

Taken at the Red Lion
Lewiston, Idaho
Wednesday, May 19, 1999 - 7:04 p.m.

A P P E A R A N C E S

ERIK SIMPSON, of Idaho National Engineering and Environmental Laboratory.

SCOTT RENO, of the State of Idaho Department of Health and Welfare, Division of Environmental Quality.

RICK POETON, of the U.S. Environmental Protection Agency.

KEVIN O'NEILL, U.S. Department of Energy

I N D E X

Reported by Jessica S. Berke, CSR, Freelance Court Reporter and Notary Public, States of Idaho and Washington, residing in Lewiston, Idaho.

WEDNESDAY, MAY 19, 1999 - 7:04 P.M.

MR. SIMPSON: Okay. I think we'll get started. Welcome. I'm Erik Simpson. I'm the Community Relations Plant Coordinator for the INEEL Environmental Restoration Program. And I'll facilitate tonight's meeting. Despite the light turnout, I think I'll just keep the format the same just for the sake of consistency.

We're here tonight to discuss the Waste Area Group 5 Proposed Plan and the Remedial Investigation and Feasibility Study. This is the sixth comprehensive environmental investigation completed at the INEEL and we have three more to go. The Waste Area Group 5 Proposed Plan follows the same format and style as the Waste Area Group 1 Proposed Plan, which was released last fall. And that document was developed with the help of a Citizens Focus Group.

The Waste Area Group 5 Proposed Plan was reviewed by our citizens advisory board in draft form. And their comments and suggestions were incorporated into the final version of this document. So really, a lot of time has gone into this document, both with the help of the Citizens Focus Group and the ER sub-committee of the Citizens Advisory Board.

I'll just go quickly through the agenda, the

plans for tonight. We'll have the Waste Area Group 5 presentation and then we'll have a questions and answers session following the presentation. And I just should mention that if a question comes up during the presentation, just go ahead and ask the presenter. And then following the presentation we'll still have a Q and A session. Following the questions and answers, we'll have a short break and then we'll come back and we'll have a formal public comment period, where your comments will be entered into the record. And we have a court reporter here tonight -- actually two court reporters here tonight recording this meeting.

You can also submit your comments in writing. And we have a postage paid comment form in the back of the proposed plan. And then I also at the back table have some comment forms also. Basically just jot down your comments, fold that one-page sheet in the back, and then put it in the mail. Also, for the first time, citizens can submit their comments on the Proposed Plan via the Internet on our EM website.

Also, if you don't mind, on the back of our agenda we have an evaluation form and let us know if the format of this meeting works for you or if you have some other suggestions.

At this time I'll introduce the presenters.

Starting off will be Scott Reno. Scott is the Waste Area Group 5 Project Manager for the State of Idaho Department of Health and Welfare, Division of Environmental Quality. And Scott will talk about -- he will give an overview and he will talk about the contaminant sources.

Next we have Rick Poeton with the Environmental Protection Agency Region 10 in Seattle. And Rick is here in place of Keith Rose. And Rick will discuss the risk assessment process and the remedial action objectives.

And then Kevin O'Neill. Kevin is the Project Manager for the Department of Energy. And Kevin will discuss the proposed remediation alternatives for the contaminant sites and will provide a summary at the end of the presentation.

So with that, I will turn it over to Scott.

MR. RENO: Thanks, Erik. No microphone tonight? Everybody can hear me?

AUDIENCE MEMBER: It didn't work.

MR. RENO: If you can't hear me very well in the back give me the volume up sign. Waste Area Group 5 is the Power Burst Facility/Auxiliary Reactor Area at the INEEL. Please let me know if you need me to talk louder. The INEEL itself, if you have never been down

there, is about thirty-two miles east -- or west of Idaho Falls. And Waste Area Group 5 is located here in the south central portion of the reservation.

The area consists of two operational areas. The stet is the Power Burst Facility and it was the location of the SPERT reactors, which were special power excursion reactors tests. And the secondary to the southeast was auxiliary reactor area. Also, you may follow along if you have the handout that has -- this is the cover. I am using some figures rather than the verbiage that's listed in those bullets there, but you can follow along there if you would like.

In the north area there are a total of five reactors that have operated there beginning in the '50s and running into the present. There is actually one reactor which is in standby mode, but still could be made operational. And that is here at the power burst reactor. And then the SPERT reactors, SPERTs 1, 2, 3 and 4 are no longer in service. SPERT 2 area is Engineering Development Facility; SPERT 3 is the current location of the Waste Experimental Reduction Facility, which is an incinerator which is present on the site.

And the fourth area is the Mixed Waste Storage Facility, which is currently used for storage

of some mixed low level waste. Down here in the ARA area was the facilities at ARA-I and II, which were used to support operations for the SL-1 reactor, which was the Stationary Low-Power Reactor. That was the site of the accident in 1961. And I could discuss that in a little bit more detail, if you would like, in a moment. ARA-III housed the Army's gas-cooled reactor experiment. And ARA-IV was the location of the nuclear effects reactor and the Mobile Low-Power Reactor. All of these facilities have been D and D, or decontaminated, decommissioned, and dismantled. And the only activity which remain are in a bunker at ARA-IV where some conventional explosives testing occurs.

In our IFS we investigated a total of fifty-five sites, forty-eight of which were determined to require no further action. There have been some cleanup activities that have already occurred there in the past. We cleaned up some contaminated sediments in the evaporation pond for the PBF reactor which received some cooling waters and some water softener regeneration wastes. And it was contaminated with some chromium and cesium-137. And we also removed the contaminated sediments in the sump that fed that evaporation pond.

We capped the Burial Ground proper for the trenches and the pit were from the SL-1 accident, the engineered barrier. We removed contents of our ARA-II site, which we are going to take further on -- or are proposing to take further action on in this Proposed Plan and Removal Action -- in 1995 so we have fifty-five gallons of sludge that they are maintaining in the group compliant storage until disposition of this proposed plan.

And then we have seven sites which we feel require further action. First of these is located south -- south of SPERT-II. And that is the PBF-16 pond. It receives water softener wastes from the SPERT-II facility. And there is a small amount of Mercury that is present near the outfall to that pond. It's a shallow lined pond. We're estimating on the order of five hundred cubic yards of soil will need to be removed from this area.

AUDIENCE MEMBER: Question.

MR. RENO: Yes.

AUDIENCE MEMBER: Removed to where?

MR. RENO: We're proposed -- we'll discuss in much greater detail the proposed remedial actions in Kevin's portion of this. But we're looking at a continuing approach. And the preference is for it to

go to the proposed soil repository. Okay.

AUDIENCE MEMBER: Then no subtitle C?

MR. RENO: Right. If there is one, decision has not been made as of yet. Okay.

Second soil site -- second of our five soil sites is the ARA-I Chemical Evaporation Pond. It receives some wastes from the hot shops at the ARA-I facility, and perhaps some chemical waste from a small preparation lab that was present there. And we believe there is on the order of up to twenty-four hundred cubic yards of soil that is present there, which is contaminated with Selenium and Thallium.

The third of our five soil sites is the ARA-III Radioactive Leach Pond. This is a shallow and natural depression that is west of the ARA-III Facility. It may have received some cooling waters associated with the gas cooled reactor experiment, or perhaps some of the other operations that were ongoing at that facility. There is on the order of ninety cubic yards of sediments contaminated primarily with cesium-137 and silver-108m that are present at that site.

4 and 5 is some contamination which was discovered fairly recently during the decontamination decommissioning activities at the ARA-I Facility. When

they were removing one of the concrete floor slabs there was some contaminated soil that was encountered in the vicinity of some floor drains. We don't know precisely how the contamination got there, but we're assuming that on the order of seventy cubic yards of soil contaminated with low level radionuclides are present there.

Yes, Jack?

AUDIENCE MEMBER: What's the history of those hot cells? What kind of work were they doing?

MR. RENO: Well, they were supporting operations at SL-1. And I believe they had a metal etching process that was there, I assume to examine fuels. I don't have a detailed knowledge of the history of that. I don't know if Jean --

MS. HOLDREN: Subsequent to the SL-1 accident the facility was decontaminated and the hot cells were then used to support whatever program when the INEEL needed something done in a hot cell. So there were a variety of activities at that facility.

AUDIENCE MEMBER: What kind of material would they be handling? Fuel or --

MS. HOLDREN: No. There weren't any fuel handling processes. They were usually things like splitting samples, for example, soil samples,

subdividing.

AUDIENCE MEMBER: Splitting them?

MS. HOLDREN: Subdividing soil samples into smaller components. That had to be done by remote operations because of contamination. That's the type of activities, as an example.

MR. RENO: Okay. Thank you. The last of these five soil sites is remaining windblown contamination associated with the SL-1 incident. This is approximately a fifty-eight-acre area. We believe most of the contamination that is present there was generated as they were moving debris from the facility to it's burial grounds in '62 to '63. The contaminant of concern that is present here is cesium-137. And we believe that most of it is confined to the upper four inches of soils at this site. That area comprises on the order forty-six thousand five hundred cubic yards of material, and is far away the largest volume of material that we're proposing to take action on.

MR. SIMPSON: Scott, do you want to touch just a little bit on the accident itself, for those who aren't familiar?

MR. RENO: Sure. On January 3rd of 1961, the SL-1 reactor experienced a power excursion which heated the cooling liquid around the reactor vessel and

resulted in a steam explosion that subsequently and tragically killed the three operators that were on duty that day. The reactor was intended for use by the military. It was an experimental reactor to look at potentially providing power at remote Arctic installations. And it appears that one of the operators inadvertently -- or who knows why -- removed one of the control rods and resulted in an uncontrolled chain reaction. The Atomic Energy Commission tore the structure down. And the majority of those components were addressed under previous record and decision at present in that -- in the burial ground.

MR. SIMPSON: Thanks.

MR. RENO: Any questions about that? Looks like most of you have some familiarity with the incident.

AUDIENCE MEMBER: There was at the last meeting of the INEEL sub-committee there was a presentation by the CDC contractor about the radioactivity that got dispersed. And it was kind of curious, because there was two different versions of -- the cloud, according to one source, went in the direction of American Falls in a southwestern direction, where -- but all the sampling data -- environmental sampling data showed that the highest

concentrations were actually to the northeast, more consistent with your ground contamination pattern.

MR. RENO: It's my understanding that when the incident happened that the wind initially was blowing to the northeast. And I know there is some, you know, uncertainty in the records and some of the accounts of this, but this is my understanding. Blew shortly to the northeast and then came back down back behind Big Southern Butte and then the wind shifted and it blew the cloud off over the Mud Lake area. So that's how I understand that it occurred. But I -- there may be some other accounts that are out there as well. Thank you, Chuck.

Okay. The two remaining sites we are proposing to take action at are tank sites, tank system sites. The first of these is the ARA-16 mixed low-level radionuclide tank. It's a one thousand gallon stainless steel tank. It's in a vault back behind the ARA-I Facility. There is approximately twenty-nine gallons of sludge that's in the tank, and up to a hundred gallons of other liquid that could be associated with it.

We lowered a camera down into the tank a couple years ago. It's in very good shape. You could still read the grease pencil writings on the side of

the tank. There is no indication there has been leaks from the tank itself.

However, in the vault soils we did detect some Cesium contamination which was present at concentrations that are generally consistent with the rest of the Cesium contamination associated with the SL-1 incident. There were not other constituents that were associated with the tank contents in tank vault soils. We don't believe that there has been a release from the tank itself.

AUDIENCE MEMBER: How would you characterize that waste?

MR. RENO: Mixed low-level radionuclide waste with PCBs. And I believe -- you're probably interested in whether or not it's transuranic. And I believe that the concentrations of transuranics in that waste was in the order of point four picocuries per gram. Do you have some other data, Chuck?

AUDIENCE MEMBER: Yeah. In your -- the reference, the final work plan -- I hope this isn't going to be the first blind side.

MR. RENO: No, no, no. In fact, I --

AUDIENCE MEMBER: I did fax this yesterday to Kathleen so that she could tell you. Here it is characterized as TRU mixed waste.

AUDIENCE MEMBER: I can answer that.

AUDIENCE MEMBER: And back here the concentration levels for the transuranics, if you convert it to -- down to nanocuries, which were in the definitions, it meets the -- more than meets the definitions for TRU -- mixed TRU.

MR. RENO: For the record, the reference cited is Final Work Plan for Waste Area Group 5, Operable Unit 5-12, Investigation Feasibility Study. And concentrations of alpha emitters referenced are americium-241 at three point four five microcuries per gram, plutonium-238 at zero point three three microcuries per gram, and plutonium-239 at zero point two nine microcuries per gram. Do you have --

AUDIENCE MEMBER: While we're on that, there is also in there -- that section right when you were reading it puts the volume at fifty-some-odd gallons -- fifty-five gallons -- fifty-four gallons something of liquid and forty-three gallons of sludge. So there is quite a big difference --

MR. RENO: Discrepancy?

AUDIENCE MEMBER: -- in the quantity.

MR. RENO: Okay. Thank you. Do you have something you wanted to add to that?

AUDIENCE MEMBER: I just have a little

insight. My name is Frank Webber. And the insight here is the work plan was what we developed to actually sample the tank for the second time. The analytical results that we found at the time, I believe as far as transuranics, it was significantly less than a hundred nanocuries per gram.

Do you have those exact numbers, Jean? Do you remember?

MS. HOLDREN: No, I don't.

AUDIENCE MEMBER: The other thing I think that should be pointed out is the volume itself seems to -- depends on whether you're talking about the sludge that's been estimated in the volume or the total liquids and sludge volume. And that tends to make up the discrepancy between the two.

AUDIENCE MEMBER: Well, it's broken down in there as fifty-four gallons something of liquid and forty-three gallons of sludge.

AUDIENCE MEMBER: Right. And again that was --

AUDIENCE MEMBER: That is a copy of the Final -- that is a copy of the Final Work Plan.

AUDIENCE MEMBER: Yeah. The Work Plan was what we used to develop our sampling plan. The analytical results are found in the RIFS as a result of

sampling based on this original knowledge. I don't recall exactly what we knew about the ARA 16 Tank prior to going into there. But we identified it as a data gap, and that's why we needed a sample.

MR. RENO: There you go.

AUDIENCE MEMBER: Now those are in picocuries.

AUDIENCE MEMBER: Here is the analytical results that we found as a result of the sampling.

AUDIENCE MEMBER: I just gave you the radionuclides there. There were others.

AUDIENCE MEMBER: I guess for the benefit of everybody else here we can see at least what it says here.

AUDIENCE MEMBER: Also collected a sample several years ago. The lid was not sealed down tightly and some rain water -- we think now -- got in also. So it changed the volume.

MR. RENO: Okay. Well, we'll look into that, Chuck. And I'll make sure that it's not transuranic waste. I don't believe it is. But we'll clarify that.

MS. HOLDREN: No, it's not. It has transuranic constituents. But by definition it is not transuranic waste.

AUDIENCE MEMBER: The INEEL calls

transuranics, I believe, anything over -- was it fifty nanocuries per gram? As I recall. And NRC recognizes it as a hundred nanocuries per gram. I think that's where the definition problem was is what INEEL decided to call transuranics.

AUDIENCE MEMBER: Well, no. That sampling was done in 1997.

AUDIENCE MEMBER: No. That was background information used to develop --

AUDIENCE MEMBER: That's why we developed the work plan and identified the data. That is the '97 --

AUDIENCE MEMBER: Well, okay. At any rate, if you have only got two different data sets you're obliged to provide some meaningful rationale as to why you choose one over the other one, you know, that will float, otherwise you've got to present them both. But it is a crucial issue, obviously. And you just can't say, well, we like this data set better than the other data set because this way we don't have to meet such more stringent regulatory requirements.

AUDIENCE MEMBER: We're confident in this data set because it was subjected to rigorous data quality requirements.

AUDIENCE MEMBER: Well, the first one was too.

MR. RENO: We'll verify that, Chuck. But I think from a regulatory standpoint, probably if we treat this at the advanced mixed waste treatment project, even if it's below TRU, the treatment residuals probably need to be disposed of as transuranic waste would be anyway. So --

AUDIENCE MEMBER: Well, I understand that.

MR. RENO: But we will verify that. It does look like there is some discrepancies there.

AUDIENCE MEMBER: But there is two other issues involved. Say, for instance, a member of the public says, Why are you spending all this money on this more involved process when you are just talking about mixed low level waste? You know, so, you know, go with this in situ vitrification or something like that. You know, why spend all the extra money? But the difference is that those Alternative 3s would not meet the regulatory ARARS if it was mixed TRU.

And then there is another thing. Even with the preferred alternative, inasmuch as you appear to be making a commitment to have it treated at the advanced mixed waste treatment plant, that, you know, there is no sampling data to confirm your assumption that the tank, after fifty years of having mixed transuranic waste in it, is not itself mixed TRU. So, you know,

the alternative there as far as the physical tank itself, you know, is still open to question.

AUDIENCE MEMBER: We agree with that. There will have to be a hazardous waste determination provided on that tank as well as the piping that goes into it prior to remediation.

MR. RENO: Okay. Yep. Thank you, Chuck. With that, I'm going to turn this over to Rick with the EPA to discuss risk assessment process and results.

MR. POETON: The risk assessment consisted of three major elements. First, identifying the contaminants of concern; what contaminants are present and the degree of toxicity or carcinogenicity with respect to human health and the environment. The second element is to identify exposure pathways; pathways of concern, such as direct exposure from radiation, soil and groundwater ingestion routes and dermal contact, contact to the skin. And the third piece is to identify human and ecological, that is plant or animal, receptors that could be exposed to contaminants at levels of concern.

The -- excuse me. I think I'm out of order here. For the human health evaluation under super fund criteria, the acceptable of cleanup risk range for risk management decisions runs from about -- runs from one

in a million to one in ten thousand. And that is excess lifetime cancer risk.

For noncarcinogenic effects, the measure is the hazard index. And that indicates a potential for adverse effects to the most sensitive individuals such as children. Hazards indices below one are those unlikely to cause adverse effects.

For the human health assessment we looked at two risk scenarios: The Occupational Scenario addressed exposure to a worker eight hours a day, two hundred and fifty days a year for a working lifetime of twenty-five years. In this case, we looked at both a current worker, someone who would be working on the site presently, and a worker a hundred years in the future.

For the current worker there are institutional controls in place currently that operate to reduce that worker's exposure and risk. The primary pathways of concern in both circumstances are external exposure and dermal absorption.

For the hypothetical future residential scenario, the exposure conditions assumed are exposure twenty-four hours a day, three hundred fifty days a year for thirty years. And the exposure would begin with someone starting to live there a hundred years in

the future. Primary pathways of concern, again, are external radiation exposure and dermal absorption.

In addition to human health, risk assessments look at ecological risk. For the ecological receptor scenarios we examined possible impacts to birds, animals, plants, reptiles and insects. We evaluated individual species of concern as well as groups of species; screened contaminants based on site-specific data as well as data collected from literature searches. And the receptors were assumed to inhabit the area one hundred percent of the time.

AUDIENCE MEMBER: Question.

MR. POETON: Yes?

AUDIENCE MEMBER: In terms of your exposure scenarios, inasmuch as you're evaluating surface soil contamination as one of your major remedial actions, I mean, wouldn't the resuspension of those contaminants into the air constitute a pretty significant risk from an internal exposure to the lungs?

MR. POETON: I don't know if that was modeled specifically in this case. But I think I can tell you from my experience on other sites that where you have superficial deposits of Cesium or other primary Gamma emitters, the risk driver will be the external exposure from the surface.

And you're right. There will be some resuspension and trainament in the air, but the inhalation risk is very small compared to the risk that you get just by being exposed to the material that's already on the ground from the external radiation. I know that's the case with Radium and similar Gamma rays.

AUDIENCE MEMBER: Because it's just more surface area from the whole body as opposed to the limited area in the lung?

MR. POETON: Well, first off, the resuspension rates aren't -- even conservatively modeled, aren't particularly large. Most material like that generally weathers into the ground over a period of time. And resuspension rates will decrease fairly rapidly with age. But basically it's because the risks from the external radiation are so large and so constant in a situation where someone is living there that they just dominate the risk situation. You can certainly calculate an inhalation risk, but it's small enough to be ignored in the uncertainty with the other risks.

AUDIENCE MEMBER: Although, it was not ignored in our risk assessment. We did evaluate inhalation as an existing pathway for contaminants of

concern.

AUDIENCE MEMBER: Inhalation just doesn't show up as an exposure pathway that requires addressing.

MR. POETON: Continuing on ecological risk assessment, the ecological receptors receive exposure and dose from contaminated soil and ingestion of contaminated plants and prey. The highest ecological risk estimates turned out to be for insect-eating mammals such as Merriam's shrew and the northern grasshopper mouse; as well as for insect-eating birds such as the ruby-crowned kinglet and the western bluebird, which, by the way, is the Idaho state bird.

AUDIENCE MEMBER: Actually, the mountain bluebird.

MR. POETON: My mistake.

AUDIENCE MEMBER: My mistake.

MR. POETON: And the hazard quotient, the ratio of potential dose to a toxicity reference value is the indicator used to assess potential risk to ecological receptors.

Looking now at the contaminants of concern for the different cites for ARA-I, a Chemical Evaporation Pond, the contaminants of concern were selenium and thallium. Those represent primarily

ecological risks.

For ARA-III, the Radioactive Leach Pond, the contaminants include cesium-137 and silver-108 metastable, which are radioactive contaminants associated with human health risk, as well as contaminants of concern, mercury, selenium and copper, primarily ecological risk concerns.

Contaminated soils in ARA-I and II, the risk concern is cesium-137 from a human health perspective.

For the ARA-I soil beneath the hot cells, the issues are cesium-137, radium 226 and arsenic for human health, as well as copper and lead for ecological.

At the SPERT-II Leach Pond Mercury is of concern for ecological risk.

At the ARA-I Sanitary Waste System, radionuclides cesium-137, radium 226 and uranium 235 and 238 are of concern for human health.

And finally, at the tank site, the ARA-I Radionuclide Tank Site is cesium-137 of human health concern.

Looking now at the risk assessment results. Again, a couple of different features and current scenarios addressed both the residential scenario in the future, occupational scenarios, both current and in the future, show risks exceeding the one in ten

thousand excess lifetime cancer risk criterion for cleanup and action under Superfund, and in some cases exceeding the hazard quotient cleanup criterion of ten in this case for ecological risk.

AUDIENCE MEMBER: Let me point something out, Rick. The risk estimate that is presented for the ARA-16 Tank there is for the vault soils, not for the tank contents itself. No risk is determined for the waste because it had not yet been released into the environment. We're taking action mitigating potential release of the waste.

MR. POETON: Remedial action objectives for those sites requiring action would be to inhibit direct exposure to contaminants resulting in excess cancer risk of one in ten thousands to workers or future residents; to inhibit dermal absorption of any contaminant of concern that would result in a hazard index of two or greater for workers of future residents; prevent the release of, and human and ecological exposure to, ARA-16 tank contents; and inhibit ecological receptor exposures to contaminated soil with concentrations greater than or equal to ten times background values, and that result in a hazard quotient greater than or equal to ten.

The evaluation criteria for the remedial

alternatives are the standard nine criteria under the Superfund requirements. The first two being the threshold, must meet criteria of protecting the human health and environment and complying with applicable or relevant and appropriate laws and requirements.

The next five are the balancing criteria that are used to weigh the various options against one another, including long-term effectiveness, reduction of toxicity, mobility, or volume through treatment, short-term effectiveness, ease of implementation and cost.

And finally among the nine criteria are the modifying criteria of state acceptance and public acceptance.

Any other questions?

Next up is proposed alternatives, Kevin O'Neill.

Thank you.

MR. O'NEILL: The soil sites were all grouped into one set of alternative evaluations. As a standard, we look at no action -- the no action alternative to baseline our other alternatives against.

The -- as Rick pointed out, the threshold criteria are must meet criteria. And no action does not meet that. Again, however, we do evaluate against

it.

The limited action criteria basically means continuing the institutional controls that currently are in place, including worker protection procedures and environmental monitoring.

That also, for the three different actions we're talk about tonight, is not suitable, does not meet the threshold and was not evaluated further in the proposed plan. The next two are Alternatives 3a and b, excavate, consolidate and containment with a native soil cover. That also was determined not to be protected, because our baseline assumption is that after a hundred years we can no longer guarantee institutional control. And the contaminants that would be buried under that cover are long-lived, and there is no assurance that the cover would not erode away.

The next alternative is basically the same, except with an engineered barrier that would ensure that ecological receptors and humans were not able to intrude into the waste and would be protected from contact with it. That containment would be erected at Waste Area Group 5.

The next four are all essentially removed and dispose. The differences being removed and dispose -- removal process through a soil sorting technology

called segmented gate and dispose on site or dispose off site.

Our preferred alternative is that we would remove the soil, process it through a soil sorter, provided that the technology is effective, and dispose on site at a suitable designed soil repository.

AUDIENCE MEMBER: Question.

MR. O'NEILL: Sure.

AUDIENCE MEMBER: In terms of the excavation, the two different excavation options, if it's mixed low level waste, which it is, as far as I can tell --

MR. O'NEILL: Okay. Let me --

AUDIENCE MEMBER: -- that wouldn't meet any -- meet regulatory requirements. The only one that would meet it would be for it to go into your Subtitle C ICDF or whatever it's called.

MR. O'NEILL: Right. The small sites -- we talked earlier about five soil sites. And the smaller soil sites, the ones that contain other than rad, certainly would have to go to a soil repository. The only one that we're talking about processing through the soil sorter is rad only. That's the only one -- only materials that apply to that. The soil sorter only sorts for rad. Okay. And that's the vast volume of material that we have, the wind blown contamination

from SL-1. And that's where we hope that implementing this technology will give us a volume reduction and hence reduce our costs.

Did that answer your question?

AUDIENCE MEMBER: Well, not really. Because you can appreciate that this gets to be pretty confusing for the general public to try to sort out what's in these plans. I mean, you're putting stuff on the table that would be illegal if you tried to implement it. And yet you're not saying clearly --

MR. O'NEILL: You lost me on what would be illegal.

AUDIENCE MEMBER: I think I can clarify. The comment that he made was we're dealing with mixed low level waste. And that is not the case for these contaminated soil sites, which are the alternatives he's talking about right now for the five contaminated soil sites. It is true we have some low levels of radioactivity and we do have some metals --

AUDIENCE MEMBER: You've got heavy metals in there that would violate the land disposal restrictions.

AUDIENCE MEMBER: No. The concentrations are low and are not classified as mixed waste.

AUDIENCE MEMBER: They're below the hazard

waste limits for those particular areas, those particular contaminants. So they are present, but they are not above the requisite limits that would make them a hazardous waste.

MR. O'NEILL: You'll notice --

AUDIENCE MEMBER: Fourteen hundred and thirty milligrams per kilogram. I mean, that's well over for lead. I mean, I haven't gone through and tried to look at that part of it, but --

AUDIENCE MEMBER: But the metal -- I have to look at the site. I'm not sure that that's --

AUDIENCE MEMBER: I have the --

AUDIENCE MEMBER: If that's the ARA-25 Site, the answer is correct, that is probably higher than the requisite limit. We expect that that material will be sorted and disposed of differently than what will the majority of the low level waste. Although we're talking approximately fifty thousand cubic yards. And that's a very small volume of about seventy cubic yards.

AUDIENCE MEMBER: Well, the thing is that this plan sort of doesn't separate out what you just said. I mean, it's not in the plan. If you read the plan, all the soils are going to go --

AUDIENCE MEMBER: To an appropriate facility.

AUDIENCE MEMBER: -- to either the ICDF or you're offering these other options of excavation and consolidation, another Warm Waste Pond type of scenario, you know, which itself is illegal. But the point is that there is -- you're not making any distinction. And this is the only thing that we've got to go by, basically, between these different soil sites.

And the thing is is that you have a responsibility to put options on the table that will meet all your errors and not put anything on -- you can mention that this is something that we'd like to do, but it won't meet this or that error.

MR. O'NEILL: And all of the alternatives that were --

AUDIENCE MEMBER: And you do mention that a couple of times.

MR. O'NEILL: All the alternatives that were evaluated in that proposed plan were evaluated because they met threshold criteria. And you know, we can look further at the details, but each of the alternatives that we evaluated further without mentioning in description were evaluated because they met the threshold criteria.

Talk a little bit about the segmented gate

system. Currently getting ready to deploy this technology on a demonstration project treatability study. We're going to process a thousand cubic yards of radiologically contaminated soil. Cesium-137 is the contaminant of concern. Based on results of this technology elsewhere we hope to get ninety percent or better volume reduction on those soils. If we can do that it will reduce the overall cost of treating those sites, particularly this site, ARA-23. And by reducing the cost of disposal and by reducing the cost of transportation, particularly if we have to -- if we have to take soil off site to dispose of it.

AUDIENCE MEMBER: Is this just the Cesium or is that --

MR. O'NEILL: Yeah. That soil that we're processing through that is contaminated with Cesium.

AUDIENCE MEMBER: No, the process itself. It's valid for other.

MR. O'NEILL: Oh, it could be set up to monitor for a number of different radionuclides. And alpha emitters.

MR. O'NEILL: They've done some work with beta emitters as well, but it's strongest impact has been with gamma emitters.

Okay. This is a decision tree that you will

find in the plan that talks about how we'll take advantage of the information from the treatability study. It also brings in the contingency of an on-site soil repository referred to as the ICDF, the Idaho INEEL CERCLA Disposal Facility. Outlines how we will determine whether or not to sort or, you know, whether the soil would be exposed based on availability of suitable capacity.

This slide looks at the various alternatives. Again, Alternative 4 was grouped in with Alternative 5. Basically if the soil sorting technology does not prove effective we won't sort. We will just dispose directly and 5 becomes 4. So for simplicity of presentation, we reduced the number. This line down here is an attempt to look at the benefit at various degrees of efficiency on a soil sorter. Zero percent really means we do not process, we just dispose of directly. The fifty percent is highlighted because that was the conservative assumptions we used when we originally set forth in developing our feasibility study. We did look at, in less depth, likely cost if we get a ninety percent volume reduction. And we'll know more by the end of June whether or not this technology is going to help us or not.

The next site is the sanitary waste system.

The sludge, as mentioned before, was removed from the septic tanks back in '96. All that remains is the septic tanks, the piping and the seepage pit. There is some sludge at the bottom of the seepage pit. Approximately two yards of material that would be likely taken to the work facility for incineration. Piping and the tank would be decontaminated and disposed on site. And the concrete block that comprises the seepage pit would likely go outside the waste disposal facility. We would like to be able to decontaminate that.

Other options we looked at as opposed to thermal treatments, using chemical stabilization. It would require some development work and it would be more expensive than thermal treatment. So we did not go any further with that.

Another option would be In Situ Stabilization, meaning we fill the seepage pit and tanks with soil and groundfill and grout and leave the material in place.

And the preferred alternative has several advantages. One is cost. The other is that all the material is removed from the environment and disposed of in a suitable repository. Removing the further risk from the environment, like 5.

The next one is our radionuclide tank site. Again, this has not been a release, but a release to the environment would be unacceptable. The soils that surround that tank that have all been mentioned are contaminated with Cesium. Those soils would be treated with the other soil sites.

We looked at options for vitrifying that tank in place. We looked at vitrifying that tank up at TAN, because they are looking at -- TAN, Test Area North. They are looking at in situ vitrification up there. I thought it might be a nice option to consider doing ours as well.

Another option is remove the waste from the tank, take it up and place it in one of the tanks at TAN and treat it there. While we believe that technology would destroy the organics and would immobilize the radionuclides, it has not been demonstrated on tanks with PCBs, and hence compliance would have to be demonstrated, the effectiveness of the treatment would have to be demonstrated. So some post treatment monitoring and sampling would have to be done.

Our preferred alternative is to remove that waste, to remove the tank and the waste, take the waste to the advanced mixed waste treatment facility, which

is being designed and constructed currently, and to decon the tank and the piping and dispose of it suitably as well. It's likely that the residuals from the thermal treatment would have to go off site.

This next option was just off site disposal versus on site. And the last two use a stabilization -- would use a stabilization technology as opposed to thermal treatment. That also would take some treatability studies, some demonstration, because of the radiological nature of the tank and the contamination. And it would be very expensive studies. And since we believe the thermal treatment would be suitable and available, that ranks out as our preferred alternative.

AUDIENCE MEMBER: I have a question on where does it -- preferred alternative -- where is the designated implant with the tank? Is it --

MR. O'NEILL: The tank --

AUDIENCE MEMBER: -- the SDA or what?

MR. O'NEILL: If we can effectively decon that tank, it would likely be disposed of at the RWMC.

AUDIENCE MEMBER: At the where?

MR. O'NEILL: At the radioactive waste.

AUDIENCE MEMBER: In the subservice disposal area?

MR. O'NEILL: Right.

AUDIENCE MEMBER: As debris. In other words, the tank would be cut off and disposed of at the RWMC.

AUDIENCE MEMBER: Could we also look at that possibly of that going to ICDF?

AUDIENCE MEMBER: The tank itself?

AUDIENCE MEMBER: Because it wouldn't need to; is that --

AUDIENCE MEMBER: No, it wouldn't. It's entirely possible we could decon it sufficiently and scrap it, send it to the bulky wasteland fill.

AUDIENCE MEMBER: Thank you.

MR. O'NEILL: You can see that our preferred alternative doesn't rank out as the least expensive, but there are issues with taking that waste to TAN, placing it back in the ground and treating it, regulatory issues that would make it difficult to implement. And you can see that implementability on those options are considered low.

Relatively small site to be able to remove the tank, the vault and any piping associated with it from the environment would be a simple -- simple -- relatively simple fix; would remove the threat of that contamination from the environment.

So in summary, we looked at fifty-five

potential release sites. Forty-eight of them were determined to require no further action. Seven sites were determined to pose an unacceptable risk to humans or the environment. Two of them are specifically the ecological sites only. The others are a mix of the -- their human health or human health and ecological.

Our preferred alternatives as proposed could cost a combined total of twenty-six million dollars. If, however, the volume reduction gained on the soil sorter is where we would like to be upwards of ninety percent, we could save five million on that total. And the direct disposal cost would likely win out if we can't beat those numbers. And it would come in around that range as well.

Public involvement is what you're here for, it's what we're here for, to hear what -- to let you know what we're thinking and for you to let us know what you're thinking. Our comment period began May 10th and it was scheduled to complete on June 9th. We'll begin developing our record of decision. We hope to have agreement on that this fall. Immediately following that we will begin our remedial design and would hope to be in the field in 2001 and complete these activities sometime in 2003.

With that, I turn the meeting back over to

Erik. Thank you.

MR. SIMPSON: Thanks. Okay. There were some questions during the presentation. Any other questions now?

AUDIENCE MEMBER: Could somebody just give me a quick explanation of the soil sorter thing.

AUDIENCE MEMBER: I'll give it a shot. You might have seen some pictures there. Basically, it's a conveyance system, conveyer belt with a series of detectors, radiological detectors, soediomydied, couple rows of those detectors. The soil is run through a screen to get rid of large rocks and things. And it is leveled to less than two inches on the belt, passed below the detectors which survey -- when they find a material that exceeds the set point it sends a signal to a series of gates that reach out and grab the soil in front of, behind and to the side of that detected element and diverts it to a dirty pile. The rest of the soil going to a clean pile.

AUDIENCE MEMBER: You might also discuss some of the results that they've had, some of the various facilities.

AUDIENCE MEMBER: We've employed this at a number of DOE sites, much for demonstration, some support actual cleanup. Particularly worked well down

at San Dia. They had ninety-nine point five percent volume reduction on depleted uranium. But their particles were very discreet.

Down at Nevada the nuclear test site, where they basically blew up nuclear weapons, the stuff was very, very finely divided. And whether it was through the way that they excavated or just the nature of the material, they did not get separation that could beat their twenty-five dollar a cubic yards disposal cost, which is tough to beat.

Also, it's been deployed out at Otfernauld. I think they're up in the ninety percent range as well.

AUDIENCE MEMBER: Johnston Atol --

AUDIENCE MEMBER: Johnston Atol, they processed two hundred fifty thousand cubic yards.

AUDIENCE MEMBER: They were well into the ninety percent volume reduction range there.

AUDIENCE MEMBER: How about also pointing out that this appointment that is funded by DCD -- or DOE headquarters in Washington D.C. under a grant of technology development program that was looking for candidate sites to apply this and try it. And the moneys were available competitively nationwide, the application was placed to try it at this site, and awarded to DUEID. And the treatability study on this

demonstration, from a practical standpoint, we have nothing to lose, and perhaps something to gain by trying it at this site and seeing if it works on a contingent basis.

So first of all, we have to make sure it will work there. This looks like a site that was made to order for this technology. It doesn't work everywhere. And then to make sure that it indeed offers some cost benefits in addition to volume reduction, in which case we will utilize it.

So like I said, we have nothing to lose by bringing it in and trying it, from the local perspective.

Chuck, did you have any others questions?

AUDIENCE MEMBER: Well, it seemed that there would be a lot of room for problem areas, particularly with alpha emitters, unless you got that stuff right down to a granular layer on the conveyer belt and it went real slow, because you can -- it's not so much of a problem with gamma emitters, that's a lot easier to pick up, obviously. But alpha emitters would be a lot more problematic.

AUDIENCE MEMBER: Well --

AUDIENCE MEMBER: The characteristic contaminant, of course, that we will be setting the

technology for is the cesium-137. I'm not sure what our set point is yet, but it's well below --

AUDIENCE MEMBER: It's like twelve point one picocuries per gram with a cleanup goal of point three. So it's about half.

AUDIENCE MEMBER: I think it can be used for alpha emitters as long as they're accompanied with something that's more readily detectable. I think that's what we --

AUDIENCE MEMBER: Or if the specific isotope also has a gamma component.

AUDIENCE MEMBER: Part of the problem with alpha is you've got to remember this material runs under a radiation detector. Just about anything will stop alpha, where gamma you get a much better signature and a much deeper response. And that's why it's been real effective with depleted uranium and hopefully cesium-137 at a couple different sites.

AUDIENCE MEMBER: Yeah. I saw a PBS special on the Johnston Atol, and it was characterized pretty good virtually as an absolute disaster that didn't work.

AUDIENCE MEMBER: For this treatment system or --

AUDIENCE MEMBER: It's funny. They're still

using it, they have four units that have been operating now for almost five full years and they've ordered a couple new units.

AUDIENCE MEMBER: Well, maybe they changed the process. Didn't you say ninety percent?

AUDIENCE MEMBER: On Johnston Atol, I don't remember the exact number, but it was up in the ninety percent, as I recall. And again, it depends. If you have a very discrete particle, particularly with gamma, the system works very well. It has trouble with play balls, you know, something more than where you're marking with the actual soil characteristics.

Our particular case works a little more of a sandy soil, particularly in the top couple of inches with discrete particles that radiation technicians used to actually go out and isolate and literally particle pick with tweezers. We feel it will work well. But the jury is still out. We won't know until June.

AUDIENCE MEMBER: Do you prep the material before it goes through the --

AUDIENCE MEMBER: No. In fact, they recommend that you handle it very little, the less handling the better. The more you handle it, the more homogenized it is. And the way the process is actually set up, it defaults to the dirty pile. So they

actually prefer that you try and control -- part of our treatability study will be to look at different methods of excavation to keep from homogenizing the soil. When in doubt, the material goes to the dirty pile.

AUDIENCE MEMBER: Yeah. I misspoke. Actually the gates reach out and collect the clean material; isn't that correct?

AUDIENCE MEMBER: Right.

AUDIENCE MEMBER: And that's an operational decision they made for the way the system seemed to function better. There is some possible conditioning that would be in the moisture content?

AUDIENCE MEMBER: Well, moisture content and removal of the oversized. They typically put a grizzly on the top of it to remove the oversized. And then that material is either considered dirty or there is some other field screening method and/or analytical method used to determine the status of that particular waste group.

MR. SIMPSON: Others? Other questions.

Go ahead, Chuck.

AUDIENCE MEMBER: Well, one of the -- one of the undones right now is the -- this new ICDF disposal site, this Subtitle C hazardous mixed -- hazardous waste disposal site. And from our perspective, I mean,

we're tickled to death that there seems to be a commitment to finally build one of these things. Certainly we've been very critical in the past years all the way up, you know, that it really hasn't been the kind of commitment to meet regulatory requirements in terms of the disposal of mixed low level waste.

The problem is, from our perspective, it doesn't look like there is going to be a public process of where, you know, there is going to be an opportunity to have an open discussion about where to build it.

MR. SIMPSON: I'll let Scott address that.

AUDIENCE MEMBER: And you've gotten all our written comments about those issues. And it doesn't seem to be the kind of commitment on DOE's part to provide the kind of additional funding for the hydrology studies through the MOU with the USGS to expand on the 1989 hundred year modeling of a hundred year flood on the site. And the modeling that was done only did the median flow rate, didn't model the maximum flow that is possible.

And even with the median flow, the north end of the chem plant would be under water. And it's a difference between eleven thousand something six hundred cubic feet per second and -- I think they modeled seven thousand something as a mean.

MR. RENO: Let me -- you got about three questions there. Let me hit those before you go on so I can keep track. The first one was on public involvement. And I think the agencies realize that there is a -- there has been quite a bit of public interest there in the proposed facility. And I don't think we make any specific commitments tonight -- it's something that we have to work with management -- but if there is such a facility, then I think we're going to look at having some workshops -- briefings probably, at a minimum, to interested parties, and probably some workshops to go over some of the design issues and then involvement of the waste acceptance criteria.

But I would like to emphasize that first of all, there had not yet been a decision made to build this facility. It's pending. And there has been some members of the public who have opposed the idea of constructing it on site. And so we'll see what happens in the WAG3 record decision.

But if there is one, then we will look at trying to incorporate interested stakeholders into the process and hearing their concerns as we cite it, design it and develop the waste acceptance criteria.

AUDIENCE MEMBER: If I can interject real quick on behalf of this gentleman, because I think

everybody else is pretty familiar with what's going on. The disposal facility we're talking about would be developed under another waste area group known as Waste Area Group 3. We would only take beneficial effects if it exists or not. We're not planning to cite one under this action. Thanks.

AUDIENCE MEMBER: Now on the last issue, our rain issue on some of the flooding concerns, I know I speak for the state that we share some of those concerns. And I believe that the DOE and EPA also recognize that the existing flood analysis that has been done is conflicting in some of the reports, and that there were no definitive answers on where the flood plain a hundred years, five hundred year, maybe needs to be arrived at. As it might relate to siting this facility in the vicinity of the chem plant, I think we believe that engineering controls to address any potential flood plain issues are fairly easy to accommodate. So --

AUDIENCE MEMBER: Well, in other words, you're sticking by what we talked about on the other conversations on the same topic that you're going to -- you're going to try to rely on liners to insulate to protect the waste from a flood. And --

AUDIENCE MEMBER: That.

AUDIENCE MEMBER: -- the thing is, you got to remember what those liners --

AUDIENCE MEMBER: You're talking about under flow. Yeah. I was specifically referring to berms. But you're talking about under flow and berms. And the liners should -- they're designed to prevent water from infiltrating and --

AUDIENCE MEMBER: No, they're not. You know what they're designed to do? They're designed to stop any small amount of moisture that squeaks by the impervious top and keep it from migrating out. That's what those liners are designed to do. And that is -- you're talking about no hydraulic lift there, no pressure, virtually. And you're talking about a very minor amount of water, assuming that the cap works. You know, you're talking about a whole different kind of scenarios. And I find it real hard to accept that perspective.

MR. RENO: I respect that, Chuck. And you are correct in that the bottom liners which are being proposed at this facility, one of clay and perhaps one synthetic, they need to be less permeable than the top layer. And you don't have the bathtub effect and you don't develop that with it. However, we would not expect a flooding event to be present for months at a

time and to penetrate the cap. But it is a design factor that we will need to consider and recognize. And we hope to come up with a plan soon that we can incorporate stakeholders' concerns in the process before we can make final decisions on these things.

AUDIENCE MEMBER: Another argument for putting it there at the chem plant where the SPERT plants are that I heard yesterday, I think -- Kathleen and I were chitchatting. And she was saying something to the effect that, while it's already contaminated from wind blown whatever plus the SPERT plans are contaminated, why go find a nice clean place and then mess that up too. You know, as an argument for weighing, Pierre's offered the same kind of argument. And I was reading recently Larry Craig's questions to the department. And he put out a very, very interesting rebuttal to that kind of perspective. He says, you know, how are we going to know whether the thing is working or not if you're over the top of an existing contaminated site? It's like pretty clear reasoning there. You'd have no way of knowing whether -- if you had groundwater contamination under that or whether it was residual from the chem plant or from the SPERT ponds or anything else like that. And DOE could go on forever saying it's not coming from the new

disposal site. It's residual stuff that was there before.

AUDIENCE MEMBER: Well, part of the argument would be that I would have to characterize the existing pond, which that particular waste stream would have its own signature.

Now assuming you were disposing of material that had the exact same signature, your argument would hold water. Assuming that the signatures were somewhat different, then you would be able to tell. But your point is well taken.

AUDIENCE MEMBER: So you can actually distinguish between strontium that came from ARA and strontium that came from the chem plant?

AUDIENCE MEMBER: No. What I am saying -- signature as far as the concentrations. If you have a good characterization of your existing area of where you build your pond, it gives you a pretty good feel for what you have -- you know, where you were at for a baseline prior to doing it. But your point is well taken.

MR. RENO: It is well taken, Chuck. And I think our objective is -- although there would be water train of the plane off, our objective would have been to have an early leak detection before any contaminants

ever reached the aquifer. And that would consist of monitors between the layers of the bottom liner and beneath the facility itself to ensure that any leach aid or no leach aid from the landfill was going to have the potential impact.

AUDIENCE MEMBER: Well, that's a given. That's a requirement that you would -- you don't have a choice about that part.

MR. RENO: But that's a valid concern and another issue that needs to be addressed in the monitoring plan and the design issues for the facility. We believe that we can adequately address those. We're not in disagreement with you. And also with siting.

AUDIENCE MEMBER: Yeah. Apparently a lot of the politics that are driving some of those perspectives are trying to protect the private owned EnviroCare and Utah's interest in getting Idaho's waste.

AUDIENCE MEMBER: No comment. Follow the money.

MR. SIMPSON: Chuck, do you have any other questions?

Let's come back at eight thirty and then we'll have the public comment session. It's about seven minutes.

(Whereupon, the hearing was in recess at 8:23 p.m. and subsequently reconvened at 8:42 p.m.; and the following proceedings were had and entered of record:)

AUDIENCE MEMBER: My name is Chuck Broscious, B-R-O-S-C-I-O-U-S. I'm the Executive Director for the Environmental Defense Institute in Troy, Idaho. The comments that I have on this proposed plan revolve around questions of what the -- what the waste category for the radioactive waste tank actually is. There seems to be some different data sets that -- one data set says it's a mixed transuranic waste, the other data set says that it's not.

I submitted for the record copies of the Final Work Plan for Waste Area Group 5, Operable Unit 5-12, Comprehensive Remedial Investigation Feasibility Study that says on Page A-8 that the waste in the tank is F listed transuranic waste. And in the same document on Page D-17 the concentration levels easily make the criteria of a hundred nanocuries per gram of transuranic waste. So as far as that -- this document is concerned, it should be listed as transuranic waste.

If that is the case, then the alternatives for that particular waste site, this is ARA-16, a number of the alternatives are listed as utilizing in

situ vitrification would not be legal, because there is no place on the INEEL site that would qualify as a transuranic -- permanent transuranic waste disposal facility. Matter of fact, there is only one in the country and that's in New Mexico.

The -- I have gained commitments from various officials here that they will send me copies of this other sampling data that they claim says that it's mixed low level waste. So I'm anxiously awaiting that.

Okay. Where are we here? There was a lot of discussion earlier in the meeting unofficially about where the preliminary remedial goals that are listed in the plan come from. There is some acknowledgment here on Page 12 that they are EPA approved screening levels. But as far as I could tell, in downloading the EPA preliminary remediation goals, they don't match. And it doesn't seem to be any -- any documentation on how those preliminary remediation goals are derived and what basis they're -- they're arrived at.

I think if you're going to use them, then you have to make that information available, maybe not referenced where a member of the public can go find out where those -- where those numbers -- where they came from and what justification there is for them.

There is a lot of reliance on the eventual

construction of the ICDF -- INEEL CERCLA Disposal Facility. The citing of that particular disposal facility needs to be a very public process where the public can have an opportunity to be involved with that decision-making process. It should not be done in any other closed door manner where our concerns about the flood zone areas, as far as we're concerned, should be excluded -- exclusionary parts of the site where disposal facility -- new disposal facilities will not be allowed to be constructed.

That's all I can think of offhand. That's it.

MR. SIMPSON: Okay. Thank you, Chuck.

Sir, do you have any comments?

AUDIENCE MEMBER: No, no.

MR. SIMPSON: Okay. Just for the record, comments made here tonight will be responded to in the responsiveness summary section of the record of decision.

Also I just wanted to remind people that the comment period remains open on this project until June 9th. And the next time that we'll hold public meetings will be sometime this summer, either July or August when we will discuss the Central Facilities Area project involving contaminated soils. And there is an

interim action proposed to address those contaminated soils.

With that, thanks for coming tonight and good night.

(Hearing concluded at 8:45 p.m.)

C E R T I F I C A T E

STATE OF IDAHO)
: ss.
County of Nez Perce)

I, Jessica S. Berke, CSR, Freelance Court Reporter and Notary Public for the State of Idaho, License No. 680, and the State of Washington, License No. 299-06 BE-RK-EJ-S318LL, residing in Lewiston, Idaho, do hereby certify:

That I was duly authorized to and did report the hearing in the above-entitled cause;

That the foregoing pages of this hearing constitute a true and accurate transcription of my stenotype notes of the testimony of said witness.

I further certify that I am not an attorney nor counsel of any of the parties; nor a relative or employee of any attorney or counsel connected with the action, nor financially interested in the action.

IN WITNESS WHEREOF, I have hereunto set my hand and seal on this 12th day of July , 1999.

Jessica S Berke

Jessica S. Berke, CSR
Freelance Court Reporter
Notary Public, States of
Idaho and Washington
Residing in Lewiston, Idaho
My Idaho Commission expires: 03/23/01
My Washington Commission expires: 03/13/03